

**RHIC SHUTDOWN SCHEDULE – REV.1**

R. Zaharatos – March 4, 2003

**RESULTS – 1830HRS MARCH 5, 2003**

**SHUTDOWN REQUEST PRIMARILY FOR ACCESS TO IR'S BY  
EXPERIMENTERS**

**SHUTDOWN PERIOD: WEDNESDAY MARCH 5, 2003, 0900 TO  
1630HRS(SYSTEMS READY FOR BEAM BY 1600HRS)**

**AGS – CONTROLLED ACCESS(1000-1400HRS)**

**BOOSTER CONTROLLED ACCESS – 1100-1230HRS**

**RHIC TUNNEL REMOTE CONTROLLED ACCESS PERIOD - 0915 to  
1430– HP surveys required for beam dump and injection line.**

**RHIC IR's – RESTRICTED ACCESS FOR ALL EXCEPT PHOBOS – 0915 to  
1430hrs most sweeps completed by 1600hrs**

**RHIC ACCESS SCHEDULE:**

Schedule for Wed 5 March 2003:

- 0830: Power supply personnel report to MCR to sign in for access to various gates.
- 0900: Shut down RHIC and AGS: Prepare for Access. RHIC studies end. Begin AGS LOTO for Controlled access.
- 0915: RHIC zones 2Z1, 6Z1, 7Z1, 8Z1, 8Z2 to Restricted Access. Four groups to enter:  
Ice Ball Team 1 enters 8GE2 (with HP).  
Ice Ball Team 2 enters 4GE2.  
Thermostat Repair Team enters 10GE1 (with HP).  
Corrector Repair Team Enters 4GE2.
- 1000: Access to AGS for Polarimeter repair (with HP). 4Z1 to RFNA access keys to 1004a. Begin Booster Controlled Access LOTO.
- 1100: Ice ball and first repair teams exit RHIC, Power supply repair team enters 5GE2 then 4GE2. Snake test set-up enters 10GE1 and PHOBOS exps may have RCA through 10GE1 (iris scan).
- 1230 Access through WGE2 Gate to check water filter
- 1300: Sweep 7Z1, , and 4Z1.

1400: Sweep AGS and 8z2

1500: Sweep remaining zones: 2Z1, 6Z1 and 8 Z1.

### **PRIMAY JOBS:**

JOBS STATUS CODE: **C** complete **IP** in-process **RS** reschedule **CAN**  
cancelled

\* additions

### **AGS RING ACCESS JOBS**

- RS** 1. Main Magnet serial number inventory(M. Hemmer)
- RS** 2. Test Ring exhaust fans(AC Grp)
- RS** 3. Modify North Conjunction Gate for simultaneous release(Acc. Ctrls.)
- RS** 4. Modify North Gate for simultaneous release
- C** 5. Replace C20 Polarimeter Tgt.(4hrs. access plus 2hrs LOTO)
- C** 6. C15 Polarimeter – replace some electronics
- C** 7. Check water flow at BTA QV13 – (found flow okay, switched pumps in attempt to reduce air in system)

### **AGS EXTERNAL**

- RS** 1. Vacuum – check/repair all IPPS(A10, E-18, H-10)
- RS** 2. Vacuum – compile list of suspected bad ion pump cables
- C** 3. Siemens M/G – change brushes(2hrs)

### **BOOSTER RING ACCESS JOBS**

- RS** 1. Replace emergency light batteries at plug door
- RS** 2. Check and drain air lines
- C** 3. Investigate A3 RF Cavity filter - repaired
- C** 4. E6 cavity water flow interlock. Temporarily lower flow intl'k from 18-17gpm. Shur flow needs to be replaced
- C** 5. Fire safety inspection of tunnel. Replaced fire extinguishers with new CO2(2 as required)

### **BOOSTER EXTERNAL**

- RS** 1. Check Bldg. 914 Pump Hse. spare air compressor unit
- RS** 2. Replace switches on timing decoder board with jumpers.(Ctrls Grp)
- C** 3. Change Linac timing decoder board(affects Pol. Protons) – 930UEB

## **NSRL EXTERNAL**

- RS** 1. Bldg. 958 heating – check heaters at outdoor A/C units inside berm fence
- C** 2. Install light controls to dim Target area lights(Access Ctrl.s.)

## **X/Y ARCS**

- C** 1. Check water filter bag(FES) – Gate WEG2

## **RHIC ACCESS JOBS – NOTE: HI-POTTING YELLOW MAIN DIPOLES TO LOOK FOR GROUND**

- 1. P.S.'s – repairs(See List)
- RS** 2. Stochastic Cooling(sect. 2) – install thermocouple equip.(Gassner)
- C** 3. Inspect entire tunnel for condition of ice balls.(Zapasek)
- C** 4. Install shielding in sector 8 for PHENIX(Pearson).
- RS** 5. Install p/p outlets in 1002(Elect.)
- C** 6. Check/read SRD's at 1C, 7A, 9C, and 11A
- \*C** 7. **Search for Main Dipole magnet systems ground(fount at connection and insulator in sect. 3, Q7)**
- \*C** 8. Vacuum – remove screen from sector valves. Sect. 9 done
- \*C** 9. Controls – replaced failed cfe-9c-ps1
- \*C** 10 Dump Kickers – (A)Ylw, replaced thyatron #1, removed redundant trg. to first pfn, and changed resistors to reduce sensitivity (B)Ylw/Blu general inspection
- \*C** 11 Controls – replaced 7C-ps3 processor

## **RHIC EXTERNAL**

- 1. Power supplies. See P.S. List
- RS** 2. Pull cable to 4GE1, 4GE2, and 4GE3 gates from 1004B(Acc. Ctrl.s.)
- C** 3. Access Controls card reader system wiring at 2,6,8, and 12
- C** 4. Vacuum 1010 – check GC response to noise(radio)
- C** 5. Sublimate: bi9, g1, g2(both IP and stand-alone cartridges)
- C** 6. Vacuum - Clear problem with s/v Bi9-3.3 following noise response test
- C** 7. Install keytree switches in 7GE1 and 8GE2

## Controls Systems:

- RS 1. 1004B – remove SIS Scaler board from 4b-ps4 and install in 4b-ps5.  
Install V102 time line decoder board in 10a-ps3.
- RS 2. 1010A – Install V102 time line decoder board in 10a-ps3.

## RHIC POWER SUPPLIES(Bruno)

### Maintenance Performed on 3/5/03

#### IR Power Supplies

1. Ice Ball Checks and replace thermostat at O11Q12. Rich C (standing in for PK and then checking for ice balls), Bob (helping Rich C with thermostat replacement), Jeff (ice ball checker) and Ron (ice ball checker).
2. In 1010A, if there is time we may want to check more tq power supplies for shorted IGBT's by looking at the AC current during a turn ON. Tom N and Mitch after they are done with replacement of bi4-tq5-ps and yo4-qd2-ps and if they have time.
3. If time allows go around and start screwing in all cards in 3u chassis. 1012A and 1004B were started. Rich K after work with Gregg is done.
4. More Q6 time constant testing. Don will move current regulator card from 1012A b12-q6-ps to bi4-qd6-ps and then ramp and test.
5. Possibly swap out firing card of y8-dh0-ps. No One.
6. Check why b2-dh0-ps tripped to the OFF state, on 2/8/03. No One.
7. Inspect buildings 1004B, 1006B, 1008B 1012A for broken internal fans on stand alone dynapowers. 1010A and 1002B were checked. Joe D
8. Replace power supplies bi4-tq5-ps and yo4-qd2-ps because of broken fans. The yellow main quad must be locked out to replace yo4-qf2-ps, see lockout and restore procedure on the web, ask Don for help if needed. Make sure mains are restore properly, let Don know if they were. Tom and Mitch, please turn tq on and run up to 20A remotely from computer. You cannot turn on qf2 unless you use building bypass, check with Don before you do this.
9. Measure Q7 DC cable resistance load - Don and help from Joe D and/or Gregg

#### **QPA Work**

1. Replace all fan switches in bi8-qd2-qp. Gregg and Rich K (first)
2. Replace D connector hardware for yo8-qd1-qp because we had an QLI that the timing resolver said was caused by either yo8-qd1-qp or yo8-qd1-ps. Gregg and Rich K (second)
3. Start replacing all QPA D connector hardware?? (b2-dh0-qp and yo8-qf8-qp dpne)

### Gamma-T Power Supplies

1. Go into alcoves and tighten AC connections of Gamma-T's in 3C, 7A, 7C, 9A.  
**No One**

### **Snake and Spin rotator p.s. Work**

1. More p.s. testing to high current.
2. Label the rest of the circuit breakers.
3. Keep an eye on bi8-rot3-1.4-ps. Wing tried to send it to 60A but only went to 57A. I did not see the problem but swapped out buffer card anyway.
4. Go and look at bi9-snk7-1.4-ps in the tunnel, alcove 9C. When you try to turn it on the current jumps up and then the power supply trips off. Possible problem with new error fault daughter board that was added? Bring a local setpoint to test in LOCAL. Try running in Vmode. **Don and help from Joe D and/or Gregg**
5. All rotators have more overshoot than snakes. Measure the resistance of the load in the tunnel and model up better. Try to improve. Check yo5-rot3-2.3-ps-see plot.  
**Don and help from Joe D and/or Gregg**

### **ATR Power Supplies**

1. Run X-ARC90 in voltage mode.
2. Test SWM p.s. setpoint buffer.
3. Tom Nehring may swap circuit breakers 42 and 44, probably won't happen anytime soon.
4. **Drop DC cables on WQ3 and megger (cables/magnet) to ground. The p.s. has a 1ohm resistor from the positive bus to ground. This would have to be removed to megger the p.s. DC terminals.**

### Corrector Power Supplies: **Gene, Brian and Don with take a look at yo4-qs3-ps only.**

1. See Table below
2. If there is time and people start checking looking for broken corrector fans by checking all alcoves.

<b>Corrector P.S.</b>	<b>Action (2/19/03)</b> <b>On all of these check AC connections and connections at the magnet.</b>	<b>Comments – What was really done-What was found</b>	<b><i>Serial Number</i></b>
Bo3-tv5-ps	One broken fan. <b>Replace p.s. Do this first since it is in alcove 3C.</b>		

Yo4-qs3-ps (do this first with Don)	Trips OFF. <b>REPLACE p.s.</b> Micro was replaced last maintenance day. Remove and look at OFF pb closely, give it to Jim O for inspection. We need to know why this p.s. trips OFF. Examine p.s. for other things that could cause it to trip OFF. Was the micro the correct REV???		
Bo7-oct2-ps	Trips OFF. <b>Replace Micro.</b>		
Bi5-octd-ps	Trips OFF. <b>Replace Micro.</b>		
Yi3-tv16-ps	Tripped on an error fault 2/28 at 9:01:13. Current jumped up. Low Priority, if you get to it replace whole p.s.		

## Valve Box Work

1. Need to replace flashers at top of valve boxes for 2b and 6b
2. Check light control chassis at 10A because no green lights work.
3. Check light control chassis at 12A because no red light on yellow valve box.
4. Check green light above blue valve box in 1002B.
5. Light control chassis in 1008B needs to be fixed. Opto logic is reversed.
6. Ron and Viorel may go to the top of one valve box and take measurements for the new link boxes. **I don't think this is happening this time, please let me know.**

## Timing of Activities

1. These can all start at once: Ice ball checks, Inspecting Dynapowers for broken fans, replacing bi5-tq5-ps and yo4-qf2-ps, replacing fan switches on bi8-qd2-qp, and then yo8-qd1-qp qpa hardware (beware if mains unlocked), corrector work.
2. When Gregg and Joe D are done please contact Don and we will move Ireg card from b12-q6-ps to bi4-qd6-ps, measure load of yo5-rot3-2.3-ps, check out bi9-snk7-1.4-ps, set up for a measurement of q7 DC cable resistance in 1012A.
3. When Rich K is done with Gregg continue screwing in 3u chassis cards from where you left off. Please let me know how far you get.
4. When Tom and Mitch are done replacing 2 power supplies at 1004B then check some tq's out at 1010A for shorted IGBT's. Do not use QPA test box, see Don if you ave any questions.